

Notice of Allowability

Application No.

09/681,571

Examiner

Ayal I. Sharon

Applicant(s)

SHAH ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 11/15/2005.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Introduction

1. Claims 1-18 of U.S. Application 09/681,571, originally filed on 05/01/2001, are currently pending.

Claim Interpretations

2. Examiner interprets the following terms according to their definitions in The IEEE Standard Dictionary of Electrical and Electronics Terms, 6th Ed. (1996), as follows:

- “Flange” – synonymous with “coupling flange” (IEEE, p.230, and p.415), “The disc-shaped element of a half coupling that permits attachment to a mating half coupling.”
- “Keybar” – synonymous with “key”, definition 2 – rotating machinery (IEEE, p.566), “A bar that by being recessed partly in each of two adjacent members serves to transmit a force from one to the other.”
- “Phase Belt” - (IEEE, p.765), “A group of adjacent coils in a distributed polyphase winding of an alternating-current machine that are ordinarily connected in series to form one section of a phase winding of the machine. Usually, there are as many such phase belts per phase as there are poles in the machine. Note: The adjacent coils of a phase belt do not necessarily occupy adjacent slots ... “

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- “Rotor” - definition 2 – rotating machinery (IEEE, p.936), “The rotating member of a machine, with shaft. Note: In a direct-current machine with stationary field poles, universal, alternating –current series, and repulsion-type motors, it is called the armature.”
- “Stator” – definition 2 – rotating machinery (IEEE, p.1044), “The portion that includes and supports the stationary active parts. The stator includes the stationary parts of the magnetic circuit and the associated winding and leads. It may, depending on the design, include a frame or shell, winding supports, ventilation circuits, coolers, and temperature detectors. A base, if provided, is not ordinarily considered to be part of the stator.

Response to Arguments

3. Applicant's arguments filed 11/15/2005 have been fully considered and have been found to be persuasive. All previously applied rejections have been withdrawn.

Examiner's Statement of Reasons for Allowance

4. Claims 1-18 are allowed.
5. The following is an Examiner's statement of reasons for allowance for claims 1-18.
6. The prior art referred to in this Reasons for Allowance is as follows:
 - U.S. PG-PUB 2002/0079782 to Shah et al. Filed: 12/27/2000. (“**Shah**”).

7. Examiner notes that the two inventors of the instant application are two of the five inventors in the Shah reference.

8. In regards to claim 1,

1. (previously presented). A method for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the method comprising:
determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts; and
selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts”, or “selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.”

9. Dependent claims 2-4 and 18 are allowable because they depend from allowable independent claim 1.

10. In regards to claim 5,

5. (previously presented). A method for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the method comprising:
determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots; and
selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provide minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots”, or “selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provide minimal keybar voltage.”

11. Dependent claim 6 is allowable because it depends from allowable independent claim 1.

12. In regards to claim 7,

7. (previously presented). A method for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the method comprising:
determining effects on at least one of keybar voltage or keybar current of adjusting the number of keybars; and
selecting a number of the keybars which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “determining effects on at least one of keybar voltage or keybar current of

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adjusting the number of keybars”, or “selecting a number of the keybars which provides minimal keybar voltage.”

13. Dependent claim 8 is allowable because it depends from allowable independent claim 7.

14. In regards to claim 9,

9. (previously presented) A method for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the method comprising:
determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots; and
selecting a number of the stator slots which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots”, or “selecting a number of the stator slots which provides minimal keybar voltage.”

15. In regards to claim 10,

10. (previously presented) A method for operating an electric machine comprising a rotor and a stator comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the method comprising
selecting a direction of rotation of the rotor which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitation of “selecting a direction of rotation of the rotor which provides minimal keybar voltage.”

16. In regards to claim 11,

11. (previously presented) A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising:

means for determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts; and

means for selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “means for determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts”, or “means for selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.”

17. Dependent claim 12 is allowable because it depends from allowable independent claim 10.

18. In regards to claim 13,

13. (previously presented) A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising:

means for determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots; and

means for selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “means for determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots”, or “means for selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provides minimal keybar voltage.”

19. In regards to claim 14,

14. (previously presented) A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising:
means for determining effects on at least one of keybar voltage or keybar current of adjusting the number of keybars; and
means for selecting a number of the keybars which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “means for determining effects on at least one of keybar voltage or keybar current of adjusting the number of keybars”, or “means for selecting a number of the keybars which provides minimal keybar voltage.”

20. In regards to claim 15,

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15. (previously presented). A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising:
means for determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots; and
means for selecting a number of the stator slots which provides minimal keybar voltage.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitations of “means for determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots”, or “means for selecting a number of the stator slots which provides minimal keybar voltage.”

21. In regards to claim 16,

16. (previously presented). A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising
a computer for performing simulations to determine effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitation of “a computer for performing simulations to determine effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts.”

22. In regards to claim 17,

17. (previously presented). A system for designing a stator for an electric machine comprising lamination segments coupled to a stator frame by keybars and stator winding phase belts within stator slots of the lamination segments, the system comprising a computer for performing simulations to determine effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots.

Paragraphs [0035] and [0036] of the Shah reference teach the use of a keybar shield to reduce the magnetic flux coupled to each keybar, and also teach that reducing the flux reduces the keybar voltage and current.

However, Examiner finds that Shah does not expressly teach the claimed limitation of “a computer for performing simulations to determine effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots.”

23. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749.

Any response to this office action should be faxed to (571) 273- 8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:


USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon

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February 10, 2006


Paul L. Rodriguez 2/14/06
Primary Examiner
Art Unit 2125